

## REMARKS

### I. Office Action Summary

Upon entry of this amendment claims 1, 4, 6-8, 10, 12, 15-37 and 45 will be pending. In the Office Action dated June 1, 2006, the Examiner rejected claims 24-26, 29-38, and 40-45, under 35 U.S.C. §102(e) as being anticipated by Lumelsky et al (U.S. Patent No. 6,466,980). The Examiner also rejected claims 27-28 and 39 under 35 U.S.C. §103(a) as obvious over the combination of Lumelsky et al. in view of Bowman-Amuah (U.S. Patent No. 6,578,068).

### II. Interview Summary

A telephone interview was conducted with the inventor, the undersigned and Examiners Delgado and Vaughn on August 9, 2006. The undersigned thanks the Examiners for the courtesy extended in that discussion. The aspect of the claims that was discussed was the management of location information separate from the data to which the location information pertains. The inventor pointed out that this permitted functions, such as load balancing, to be performed by management of location information rather than simple replication of location information and the data to which the location information pertains. The inventor also pointed out that the cited Lumelsky reference relates to manipulation of the actual data (multimedia objects in Lumelsky) rather than just the location information for that data.

### III. Rejections Under 35 U.S.C. § 102(e)

Applicants respectfully disagree with the Examiner's rejections of claims 24-26, 29-38 and 40-45 over U.S. Patent No. 6,466,980 (Lumelsky). As discussed in greater detail below, Lumelsky discloses using location information in service of optimizing **distribution of multimedia objects**, whereas Applicants' specification **manages location information** separately from the data (or multimedia objects, using the Lumelsky terminology) to which the location information pertains.

## CLAIM 24

Amended claim 24 relates to a method of scaling at least one of location server capacity and transaction rate capability in a system for storing and retrieving location information by manipulating the location information used to find the data that is being requested.

Claim 24 includes, *inter alia*, the step of:

transferring a portion of the identifiers and associated locations to a second data location server when a performance criterion of the first server reaches a predetermined performance limit

Thus, amended claim 24 relates to improvements for transaction rate scalability for location information separate and apart from any data to which the location information points. As recited in claim 24, **transferring a portion of the identifiers and associated locations to a second data location server** involves isolating specifically the location information from the end-point data itself and making changes to how the location information is managed, not the end-point data that is stored at a location identified by the location information. Examples of partitioning portions of the **location information** across servers are found in Applicants' specification (See, for example, FIG. 5 and p. 11, ll. 30 – p. 12, l. 1 illustrating location data server topology using clustering, or a distributed topology using replication, where each of the servers in the cluster may contain a different portion of a pool of associated identifier and location information).

In contrast to Claim 24, Lumelsky only focuses on replication of data objects rather than on management of specifically location information separated from the data objects themselves. Instead of teaching the management of location data itself so that data location servers with data location information are reconfigured to handle queries for the location of data, Lumelsky discloses managing and replicating the end-point data itself (in Lumelsky, the data objects disclosed are multimedia files). The method of claim 24 relates to the management of specifically location information and capacity and transaction rate scaling for accessing the location information needed to access data,

while Lumelsky is concerned with the replicating and managing the data itself rather than the location information relating to the whereabouts of the data.

The Examiner asserts that Lumelsky teaches or suggests transferring portions of identifier-location associations to a second server given a performance limit. As pointed out in Applicants' Response filed February 22, 2006, Lumelsky actually teaches replication of the multimedia objects, not simply the location data (See Lumelsky, Col. 6, lines 33-43: "The present invention additionally introduces the notion of a transient replica which replica acts as a migrating object of limited lifetime that responds to demand and capacity conditions. To do so, the controller node monitors demand and capacity and uses, creates, and deletes transient replicas from global servers.")

Lumelsky's "transient replica" refers to a multimedia object, not location information. Therefore, Lumelsky teaches transferring data objects to additional servers but does not teach transferring portions of location information to additional servers separate from data objects. Lumelsky fails to teach or suggest the separate management of location information pertaining to the data, therefore Lumelsky does not teach transferring a portion of the identifiers and associated locations to a second data location server when a performance criterion of the first location server reaches a predetermined performance limit as claimed in claim 24.

Thus, Lumelsky does not teach either (a) a method of scaling at least one of location server capacity and transaction rate capability in a system for storing and retrieving location information, or (b) transferring a portion of the identifiers and associated locations to a second data location server when a performance criterion of the first location server reaches a predetermined performance limit. Also, Applicants have amended claim 24 to note that different sets of location information are maintained on each of the location servers to further emphasize the difference between Lumelsky and the invention of claim 24.

For at least these reasons, Applicants submit that independent Claim 24 is patentable over Lumelsky. Claims 25-37 are dependent claims, therefore their allowability directly follows from the allowability of independent claim 24.

#### CLAIM 45

Claim 45 relates to a system for managing location information and providing location information to location queries. Claim 45 includes, *inter alia*:

a location server operating in accordance with a transfer protocol, the transfer protocol comprising instructions for manipulating an identifier and at least one location associated with the identifier . . .

Unlike Lumelsky where replication of data (e.g. multimedia objects) is disclosed rather than the location information relating to the whereabouts of the data, claim 45 recites a location server specifically configured with a location data protocol for managing location information separately from the data the location data is pointing to. In contrast, Lumelsky teaches use of transfer and transport protocols for transmitting multimedia data rather than for managing location information (See Lumelsky, Col. 9, lines 14-21). Lumelsky teaches the use of transfer protocols designed for (a) videoconferencing and (b) broadcasting audio-visual data, (c) controlling delivery of data, and (d) lower-level transport protocols UDP, multicast UDP, TCP, and RTP to deliver continuous streams. However, Lumelsky does not teach use of a transfer protocol comprising instructions for manipulating an identifier and at least one location associated with the identifier.

Accordingly, Applicants submit that Lumelsky does not teach a location server operating in accordance with a transfer protocol, the transfer protocol comprising instructions for manipulating an identifier and at least one location associated with the identifier.

Finally, Lumelsky teaches the use of replica and server directories to advise placement policy, illustrated in FIG. 6(a) and FIG. 6(b). The replica directory records various statistics for identifiers, such as predicted demand, geography, demand volume, and time-to-live (col. 10, ll. 23-28). The server directory records information such as IP address or hostname and capacity rating (col. 10, ll. 42-46). However, Lumelsky does not teach the use of a transfer protocol comprising instructions for manipulating an identifier and at least one location associated with the identifier.

As discussed in the interview of August 9, 2006 and reiterated in more detail above, Applicants respectfully submit that claim 45 distinguishes over Lumelsky

because Lumelsky fails to teach or suggest a system for manipulating location information separately from the data to which the location data pertains.

For at least the above reasons, Applicants submit that claim 45 is allowable over the cited art.

#### **IV. Rejections Under 35 U.S.C. § 103(a)**

Applicants respectfully disagree with the Examiner's rejections under 35 U.S.C. § 103. Applicants submit that dependent claims 27-28 are allowable for at least the same reasons as provided above for independent claim 24. Claim 39 has been cancelled to expedite allowance of the remaining claims. Applicants reserve the right to refile claim 39 in a continuation application.

#### **V. Reintroduction of Withdrawn Claims**

In view of the August 9, 2006 interview and the clarification that the claims relate to systems and methods for manipulating location information, as opposed to data identified by the location information, Applicants have reintroduced claims 1, 4, 6-8, 10, 12, and 15-23 which all relate to manipulation of location information.

Independent claim 1 relates to a system for managing location information for an entity (e.g. data) separately from the entity itself, where location servers in the system each have differing sets of location information and are configured to return a location information for the desired entity (i.e. information on where to find the entity) if that location server contains the location information.

Independent claim 17 relates to a system for managing location information for data separately from the data itself, where, among other features, each of a plurality location servers are arranged in a cluster topology and, in response to a query, will return either the requested location information or a redirect message providing information on where to find a location server with the location information for the data.

Independent claim 21 recites a method for handling location queries where each of a plurality of location servers has a unique set of location information of an aggregate set of the location information. The method includes the steps of receiving an identifier for an entity, sending a location response with the location information of the entity if the

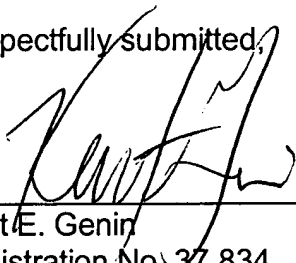
location server receiving the query possesses the location information, or sending a redirect message identifying another location server with the location information for the entity.

Applicants submit that each of the reintroduced claims, along with their respective dependent claims, distinguish over Lumelsky for at least one or more of the reasons provided above. Consideration and allowance of the reintroduced claims is respectfully requested.

## **VI. Conclusion**

In light of the above, Applicants submit that claims 1, 4, 6-8, 10, 12, 15-37 and 45 are in condition for allowance. Applicants further submit that the amendments to the claims are fully supported by the specification as filed. Applicants have cancelled claims 2-3, 5, 9, 11, 13-14 and 38-44 in order to expedite review and allowance of the remaining claims. Applicants reserve the right to refile these claims in a continuation application. If any issues arise or questions remain, the Examiner is invited to contact the undersigned at the number listed below in order to expedite disposition of this case.

Respectfully submitted,



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